EXPEDITIONARY LOGISTICS

GROUND LOGISTICS COMMAND AND CONTROL

INDUSTRY DAY

Presented By: Office of Naval Research
15 May 2001

AGENDA

0730-0800	**REGISTRATION**
0800-0810	**INTRODUCTION/ADMIN REMARKS**
0810-0840	**MCSC (PM-IS) COMMENTS**
0840-0850	**EXLOG FNC BACKGROUND AND OBJECTIVES**
0850-0920	**HQMC ADVOCATE COMMENTS**
0920-0930	**BREAK – REFRESHMENTS**
0930-0945	**BAA APPROACH AND OVERVIEW**
0945-1010	**ENABLING CAPABILITIES**
1010-1030	**PRELIMINARY DRAFT CONCEPT OF EMPLOYMENT**
1030-1045	**TRANSITION TO ACQUISITION/EXIT CRITERIA**
1045-1100	**BAA TIMELINE LEADING UP TO CONTRACT AWARD**
1100-1115	**EXLOG WEB SITE**
1115-1130	**BREAK – REFRESHMENTS**
1130-1300	**QUESTIONS**
1300	**ADJOURN**

EXLOG FNC BACKGROUND AND OBJECTIVES

Background

In 1999 DON adopted a new process for using S&T to achieve Future Naval Capabilities.

Designed to apply new technology to the problems of expeditionary logistics.

Each FNC managed by an IPT consisting of representatives from requirements, acquisition, ONR and S&T resource sponsor communities.

ONR responsible for execution.

Each investment/product will culminate in well-defined demonstrations.

Objectives:

Focus is on delivering capabilities to the operational forces (transition at end of FY 04).

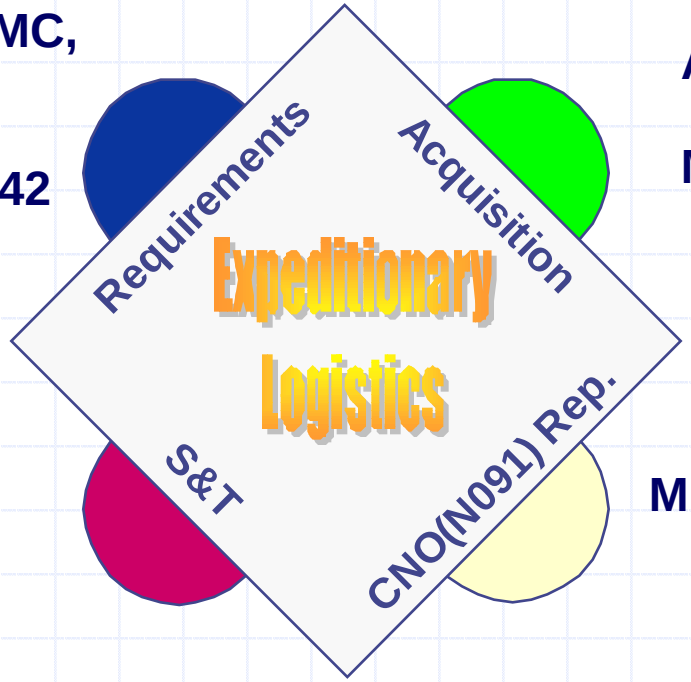
Provide significant technology options and operating concepts to meet Dept. of the Navy capability.

ONR FUTURE NAVAL CAPABILITIES

Expeditionary Logistics Future Naval Capability

Mr. R. Hammond, USMC, HQMC I&L

Mr. J. Kaskin, USN, N42



ADM Morral, PEO EXW

Mr. D. Ferris, MCSC PM IS

Mr. T. Tesch, ONR, S&T lead
Ms. L. Torres, ONR, deputy

Mr. B. Smith, N911T

DEVELOPMENT, PROCUREMENT AND LIFE CYCLE SUPPORT

Responsible Command: Marine Corps Systems Command

Directorate: C4ISR

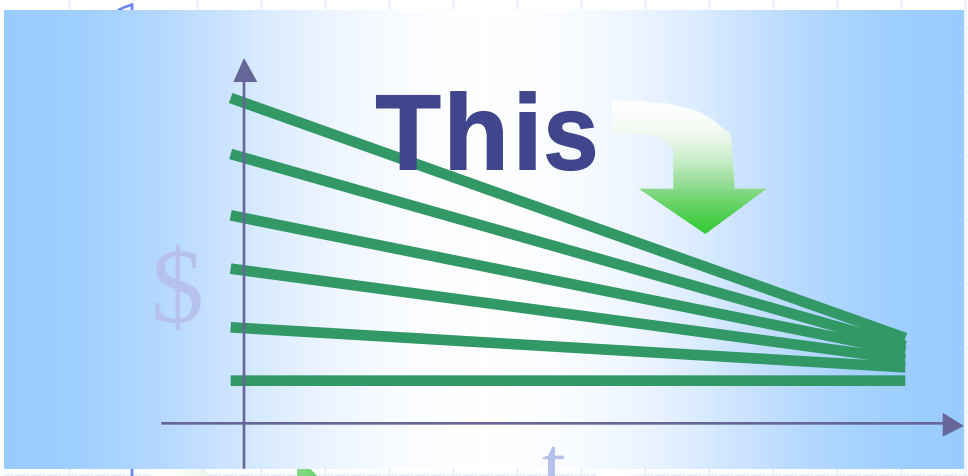
Program Manager: Information Systems

Point of Contact: Dave Ferris

LEGACY SYSTEM UPDATE

ONR FUTURE NAVAL CAPABILITIES

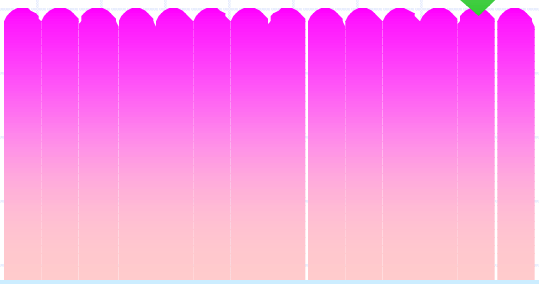
A Problem / Solution

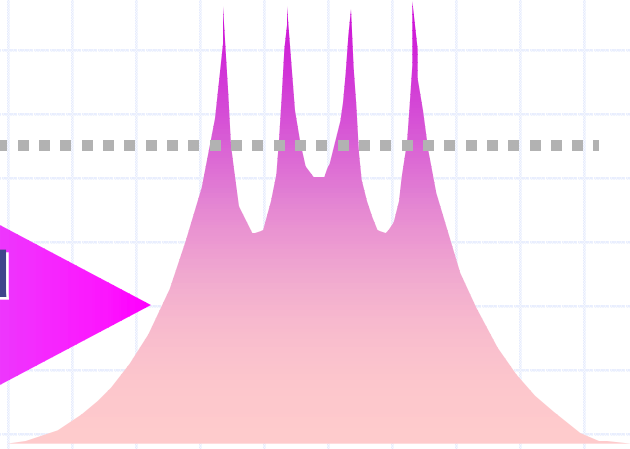


means this…

Critical Mass

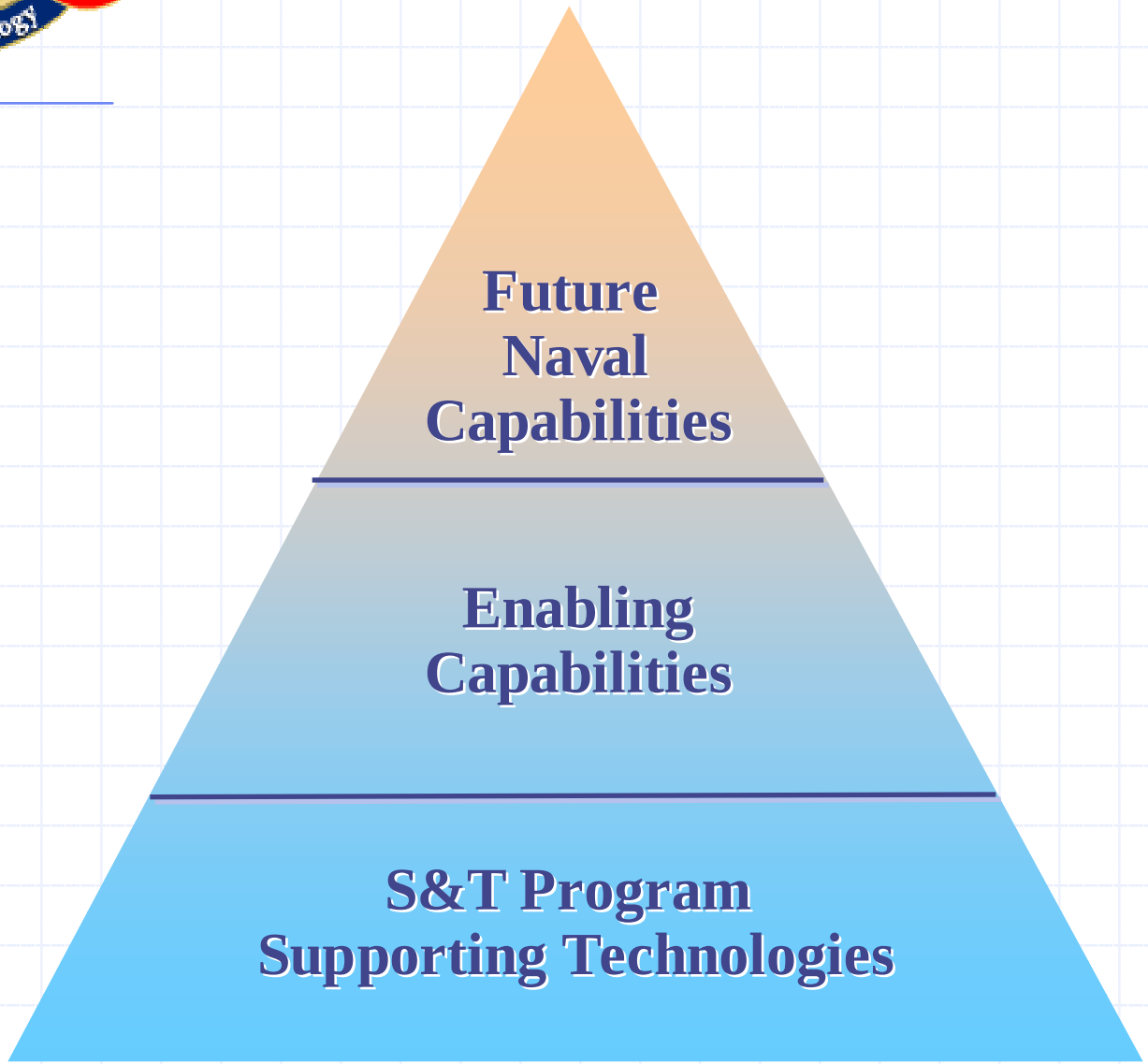
But we need this…



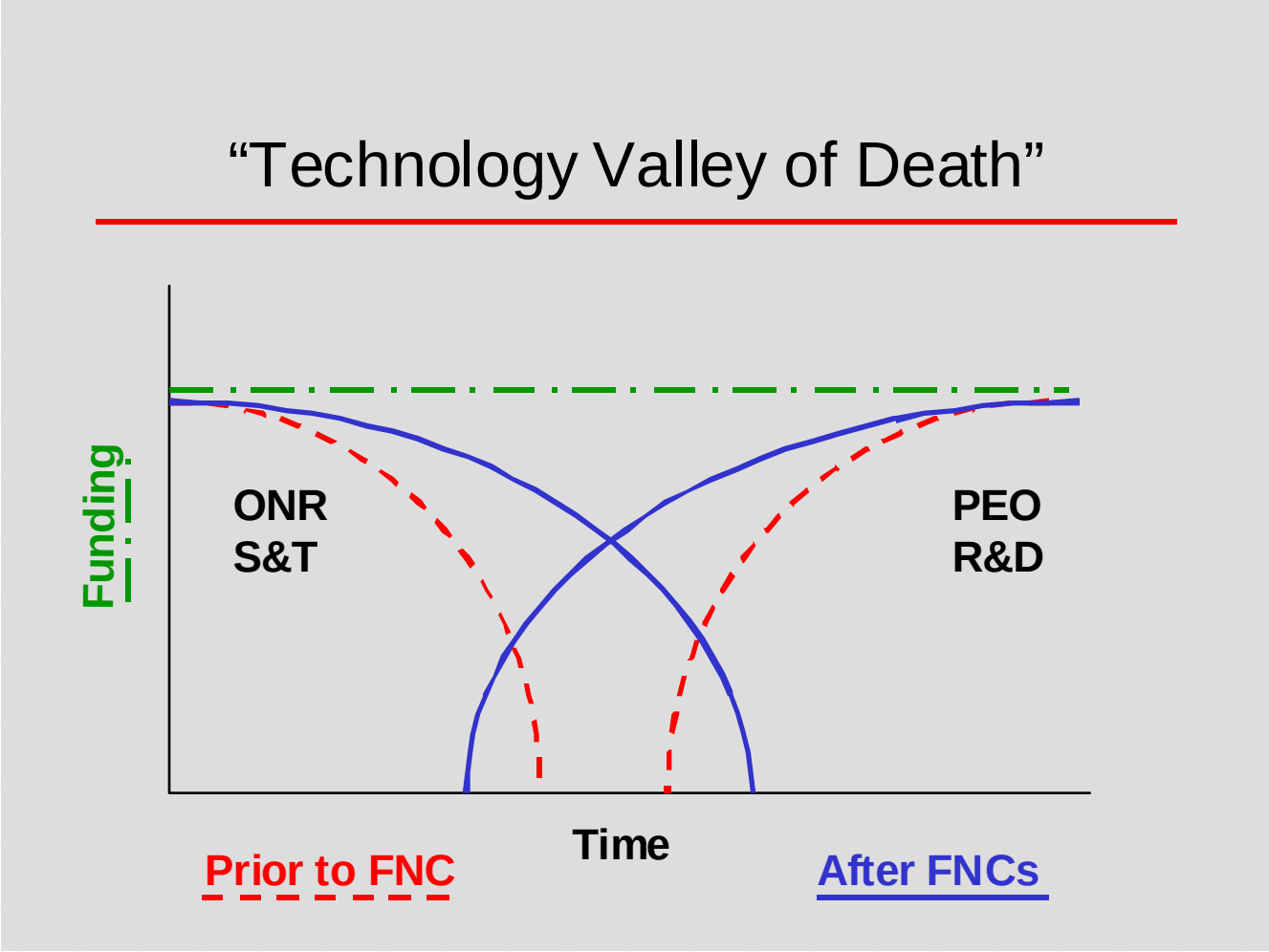


Programs below critical mass were never ready for transition

FNC TAXONOMY

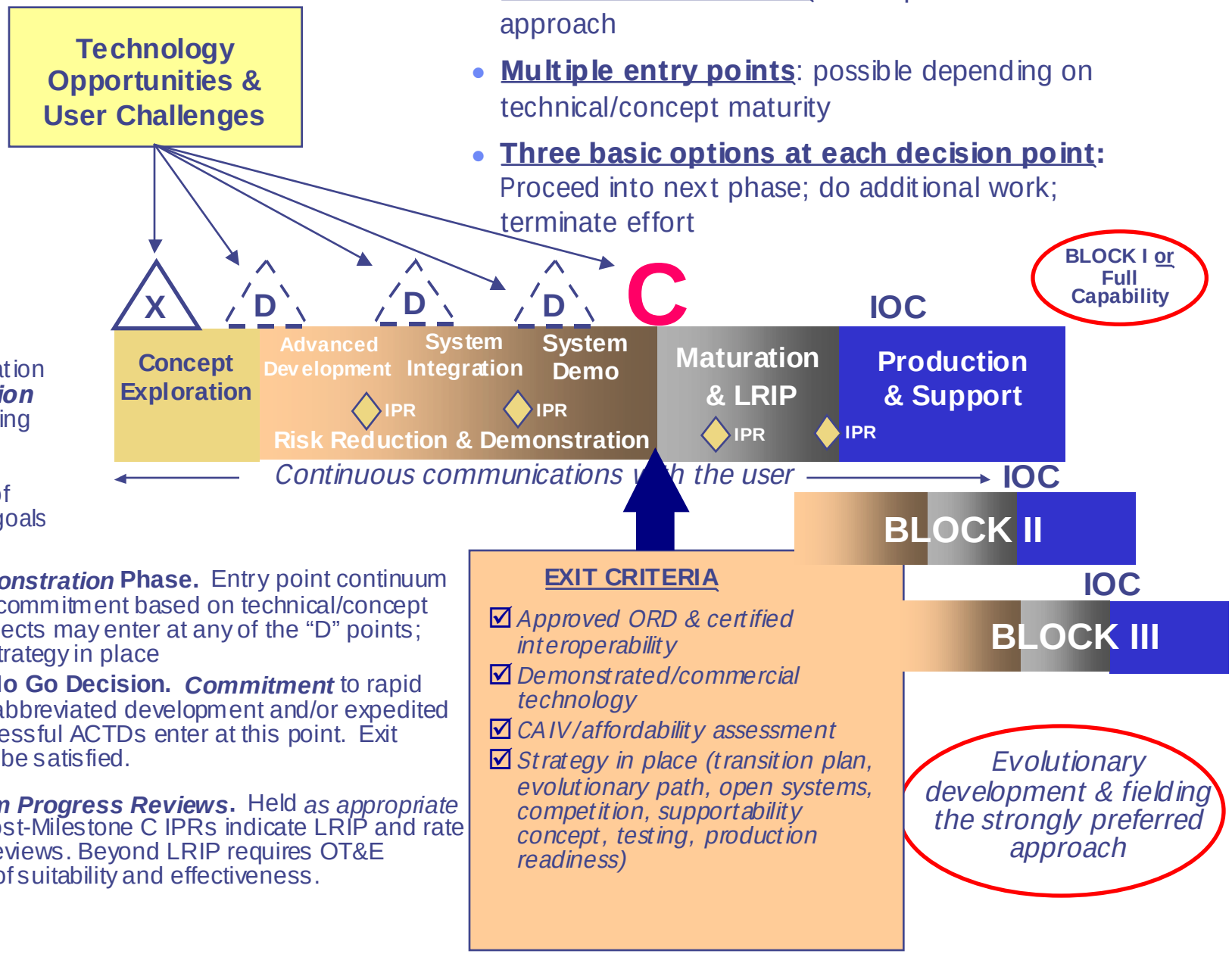


TECHOLOGY TRANSITION PROCESS IMPROVEMENT



A MODIFIED ACQUISITION PROCESS

- **New milestone names**: to emphasize new approach
- **Multiple entry points**: possible depending on technical/concept maturity
- **Three basic options at each decision point:** Proceed into next phase; do additional work; terminate effort



- **MS X:** Initiation of ***exploration*** phase including analysis of alternatives; refinement of operational goals

- **MS D:** ***Demonstration*** **Phase.** Entry point continuum and funding commitment based on technical/concept maturity; projects may enter at any of the "D" points; acquisition strategy in place
- **MS C: Go-No Go Decision.** ***Commitment*** to rapid acquisition (abbreviated development and/or expedited LRIP). Successful ACTDs enter at this point. Exit criteria must be satisfied.
- **IPRs: *Interim Progress Reviews*.** Held *as appropriate* in phase. Post-Milestone C IPRs indicate LRIP and rate production reviews. Beyond LRIP requires OT&E certification of suitability and effectiveness.

LOGISTICS/COMBAT SERVICE SUPPORT ADVOCATE

Who is it?

Deputy Commandant for Installations and Logistics

What is he responsible for?

Responsible for ensuring Marine Corps forces, and in particular Marine Air Ground Task Forces, contain the necessary CSS capabilities to meet mission requirements.

Action Officer:

Major Chris Wagner I&L (LPV)

Major Jason Hackerson I&L (LPV)

LOGISTICS TRANSFORMATION

BREAK

United States Marine Corps

Logistics Command and Control
and
Autonomic Logistics

Major Jason Hackerson
HQMC LPV

Ground C2 Conference
15 May 2001

Operational Requirement

Objective 1.4. Develop Logistics Command and Control Capabilities.

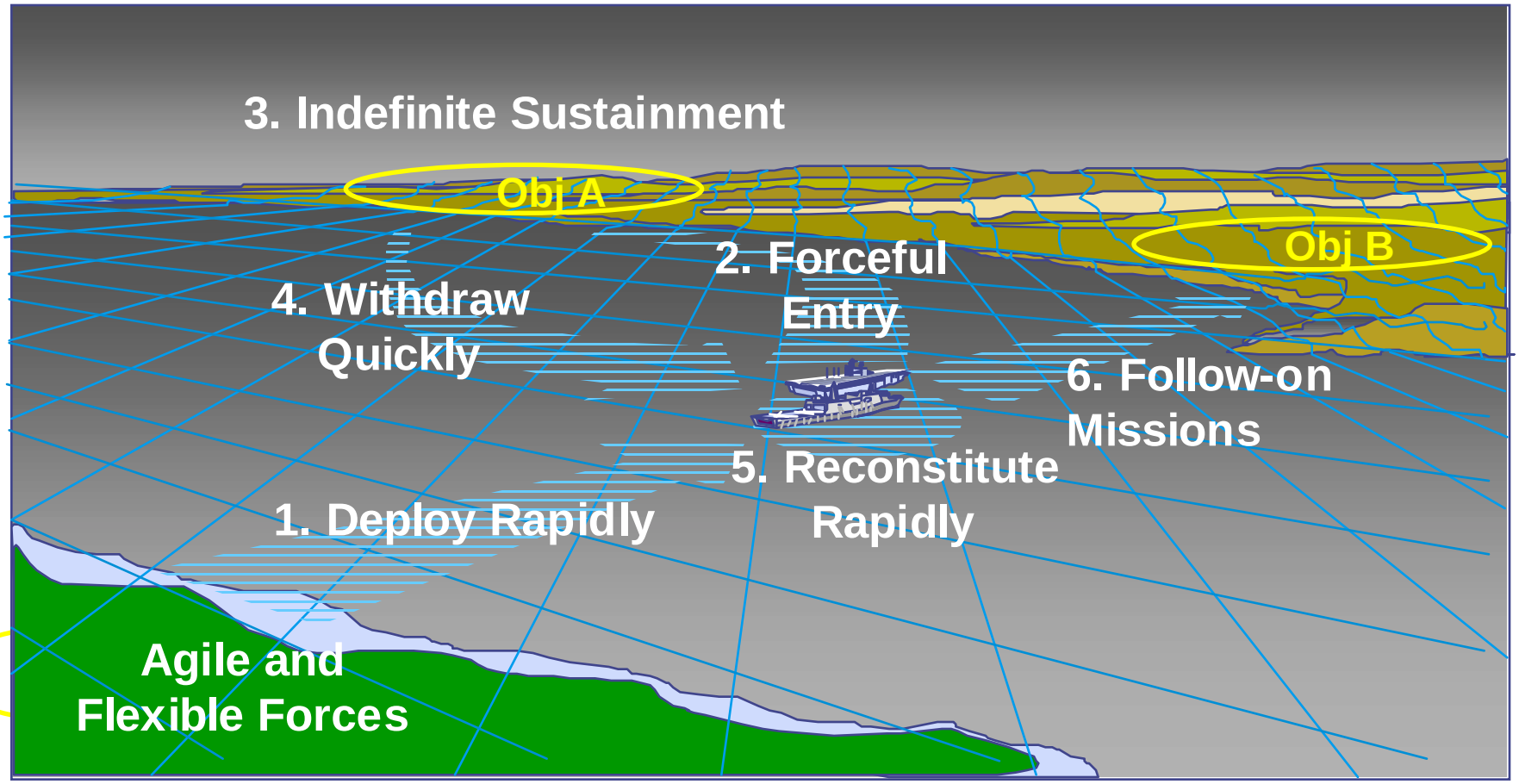
Marine Corps Logistics Campaign Plan
1 Jan 2001

The Marine Corps' operating forces require a Combat Service Support (CSS) Command and Control (C2) capability that enables situational awareness, analysis, planning, and execution management. This capability should be the result of modifications to and the integration of logistics processes, structure, and information systems.

CSS C2 Universal Needs Statement (UNS)
27 March 2001

Expeditionary Maneuver Warfare (EMW)

- Marine Corps Logistics must be capable of functioning in both shore-based and sea-based environments across the full operational spectrum.
- A robust logistics C2 capability is key to doing this.



Autonomic Logistics Operational Need

The Marine Corps requires the capability within the operating forces for ground tactical equipment to automatically generate and transmit critical system data (location, direction of movement, speed, fuel, ammunition levels, prognostics/diagnostics, and cargo) from the battlefield to remote monitoring stations for processing.

Fleet Operational Needs Statement (FONS)
7 Jan 2000

- *Operational Maneuver From The Sea OMFTS Working Group 30 Nov 98*
- *Sea-Based Log and MPF 2010 & Beyond Wargame 30 Apr 98*
- *Marine Corps Logistics Campaign Plan 1 Jan 2000 (Task 1.5.4.)*
- *MAWTS-1 OMFTS Study 5 May 2000.*

What we do today

Currently, mission critical system data is manually collected, passed, and compiled.

- *Situational Reports*
- *Logistics Requests*

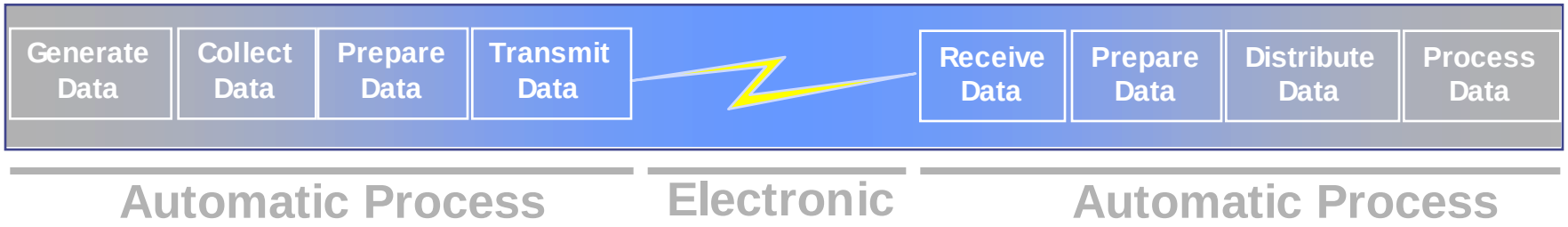
Manual Process | **Electronic & Physical** | **Manual Process**

Untimely data that does not enhance the MAGTF Commander's situational awareness

- *Reporting burden on the commander.*
- *Data is generally inaccurate and/or lacks granularity.*
- *Not timely - up to 24 hours old before updated.*

What We Need to do Tomorrow

In the future data will be transferred from ground tactical equipment to supported applications automatically.



Real to Near-Real Time data that enhances Situational Awareness for the MAGTF Commander

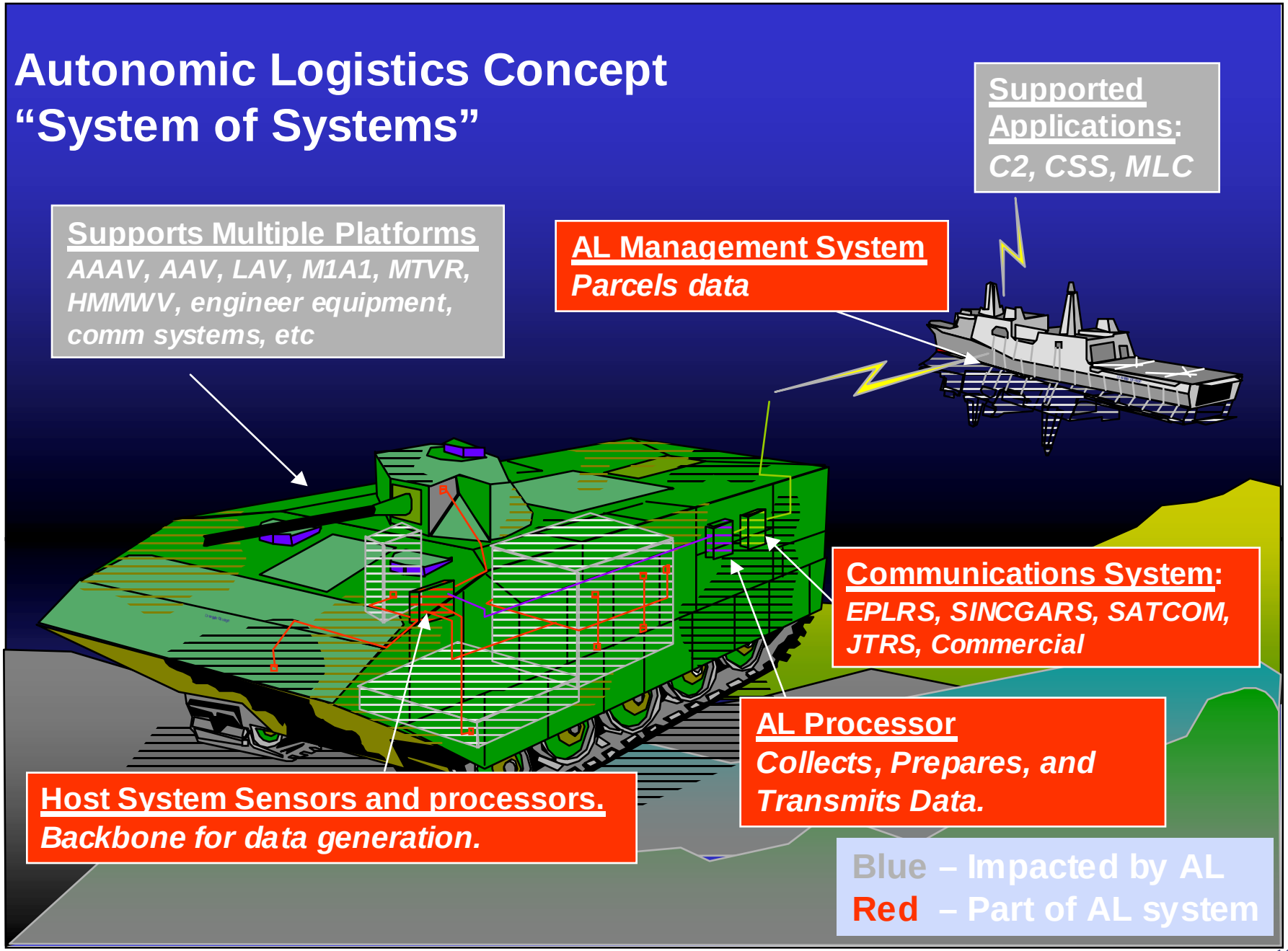
- *Significantly reduces reporting burden.*
- *Data is timely and accurate.*
- *Data collection can be event driven and/or when required.*

Mission Critical Data

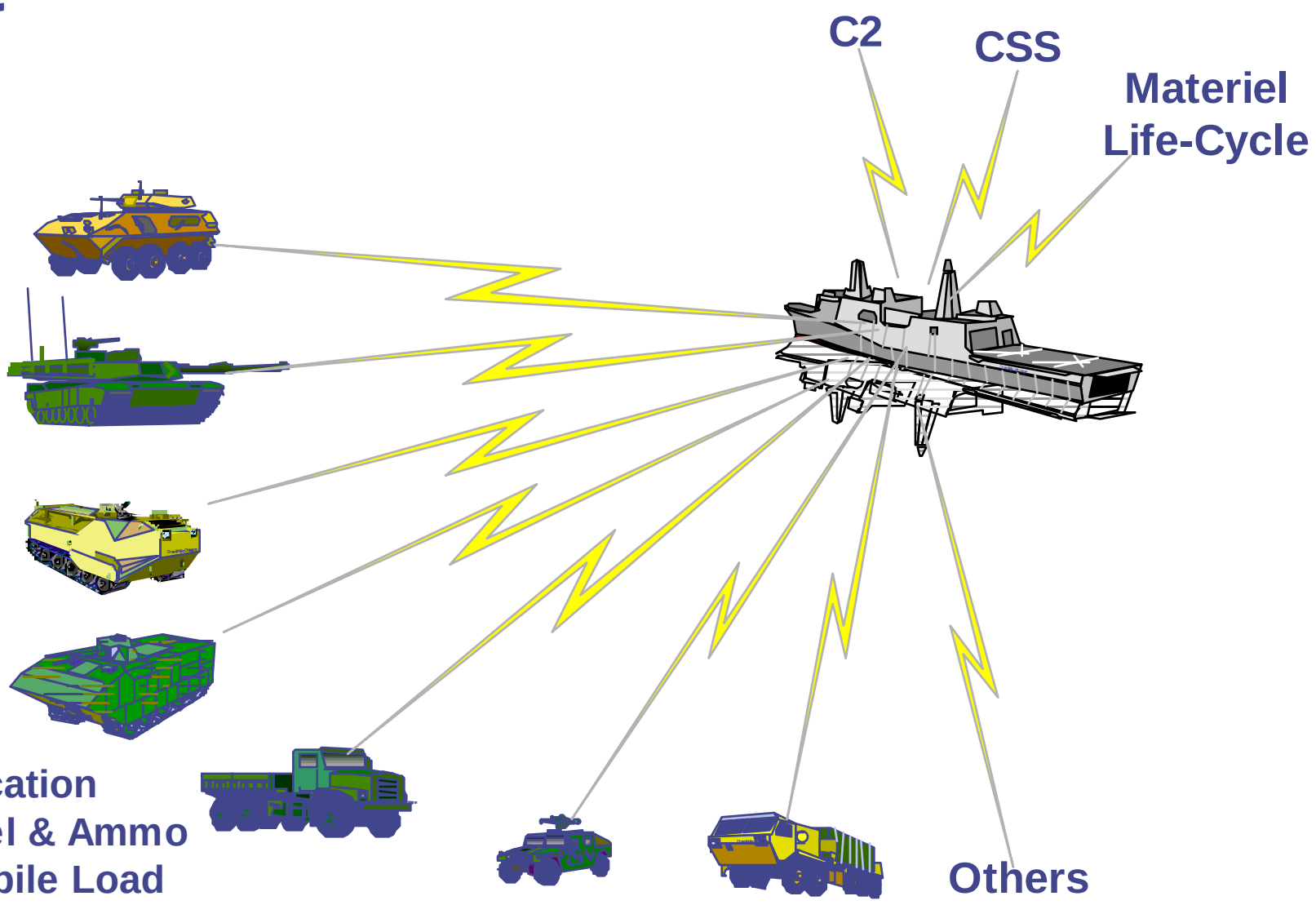
Minimum data required to make AL a viable capability to the MAGTF:

- Identification
- Location
- Fuel and Ammunition Levels
- Mobile Load **Who and What**
- System Health
  - **Operational (up or down)**
    - *minimum requirement*
  - **Prognostics – anticipates problems**
    - *within capability of host system*
  - **Diagnostics – identifies problems**
    - *within capability of host system*

Autonomic Logistics Concept
"System of Systems"



Questions?


C2
CSS
Materiel
Life-Cycle
ID
Location
Fuel & Ammo
Mobile Load
System Health
Others

GCSS-MC
Warfighter CSS on Command

MARINE CORPS LOGISTICS COMMAND AND CONTROL

MARCORSYSCOM PERSPECTIVE

Mr. David Ferris PM-IS

C2 Industry Day
15 May 2001

GCSS-MC
Warfighter CSS on Command

Purpose

- ***Provide comment on Logistics Command and Control from the Systems Command perspective***
- ***Provide information on current Systems Command Logistics Command and Control issues and activities***

GCSS-MC Overview

- **GCSS-MC is the physical implementation of the ILC IT Architecture**
- **ILC is the USMC answer to Logistics Transformation**
  - **Increase Effectiveness for USMC logistics**
    - **Changing processes**
    - **Optimize/Modernize IT infrastructure**
    - **Begun Oct 1998**
- **GCSS-MC Architecture**
  - **Shared Data**
  - **Web-based**
  - **Data capture**
  - **Decision support**
  - **Commercial transaction standards**
  - **Based on Operational Architecture**

GCSS-MC
Warfighter CSS on Command

Challenge

- ***Develop*** an information technology infrastructure that adapts to command and control doctrine, processes, and organizations

Combat Service Support Information at the Warfighter's Command

GCSS-MC
Warfighter CSS on Command

Issues

- Lack of formal operational architecture for logistics command and control
- Transition of requirements and concepts for viable deployable capabilities
- Transition of pilots, ACTD's, projects to the acquisition process

GCSS-MC
Warfighter CSS on Command

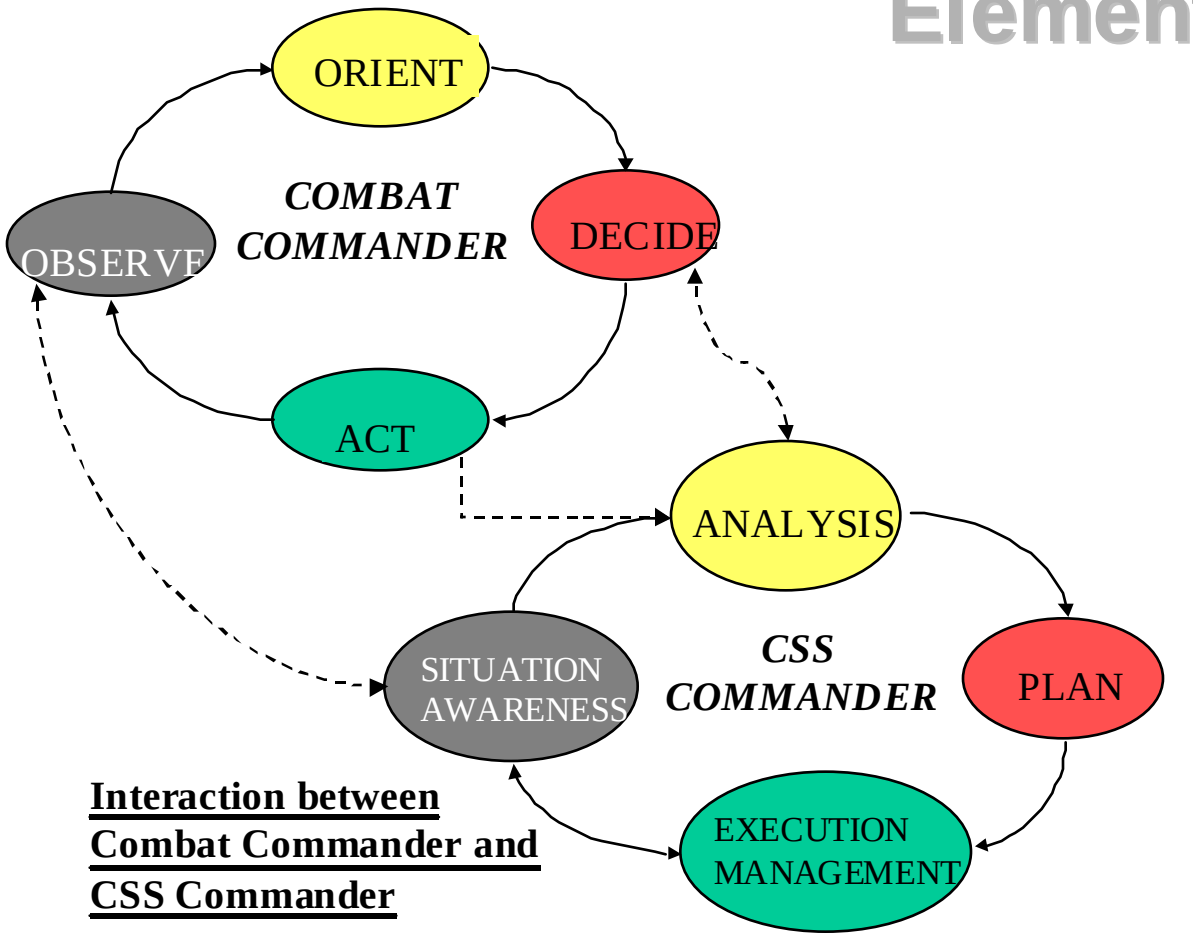
Requirement

- Provide logistics planners and operators with a cross functional view of information repositories
- Provide access to critical near-real time information at the right time and in a useful form to support the decision making process

Access to as much knowledge as possible about the current operational environment

GCSS-MC
Warfighter CSS on Command

Information Flow Between the Commander and the Combat Service Support Element

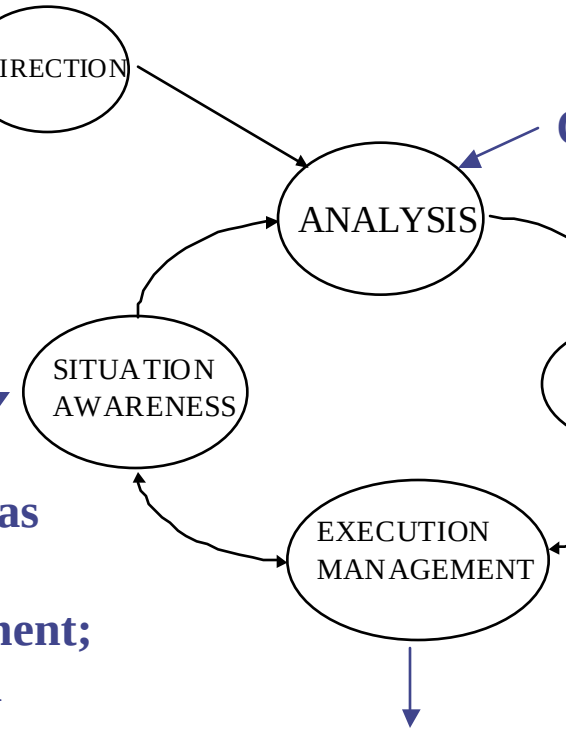


Interaction between Combat Commander and CSS Commander

GCSS-MC
Warfighter CSS on Command

LOGISTICS COMMAND AND CONTROL COMPONENTS

Combat commander's intent and plans



COA Development

Access to knowledge as about the current operational environment; tailorable, drill-down capability

The process of developing practical schemes for taking future actions

Allows for the viewing and influencing of multiple supply chains

GCSS-MC
Warfighter CSS on Command

Priorities

- Support over current limited tactical and operational communications infrastructure
  - *"The last mile…"*
- Operational Deployability
  - *Naval and Battlefield utility*
- Integration with Shared Data Activities
- Integration with MAGTF Software Baseline
  - Tactical Combat Operations (TCO)

NOT IN PRIORITY ORDER

GCSS-MC
Warfighter CSS on Command

Summary

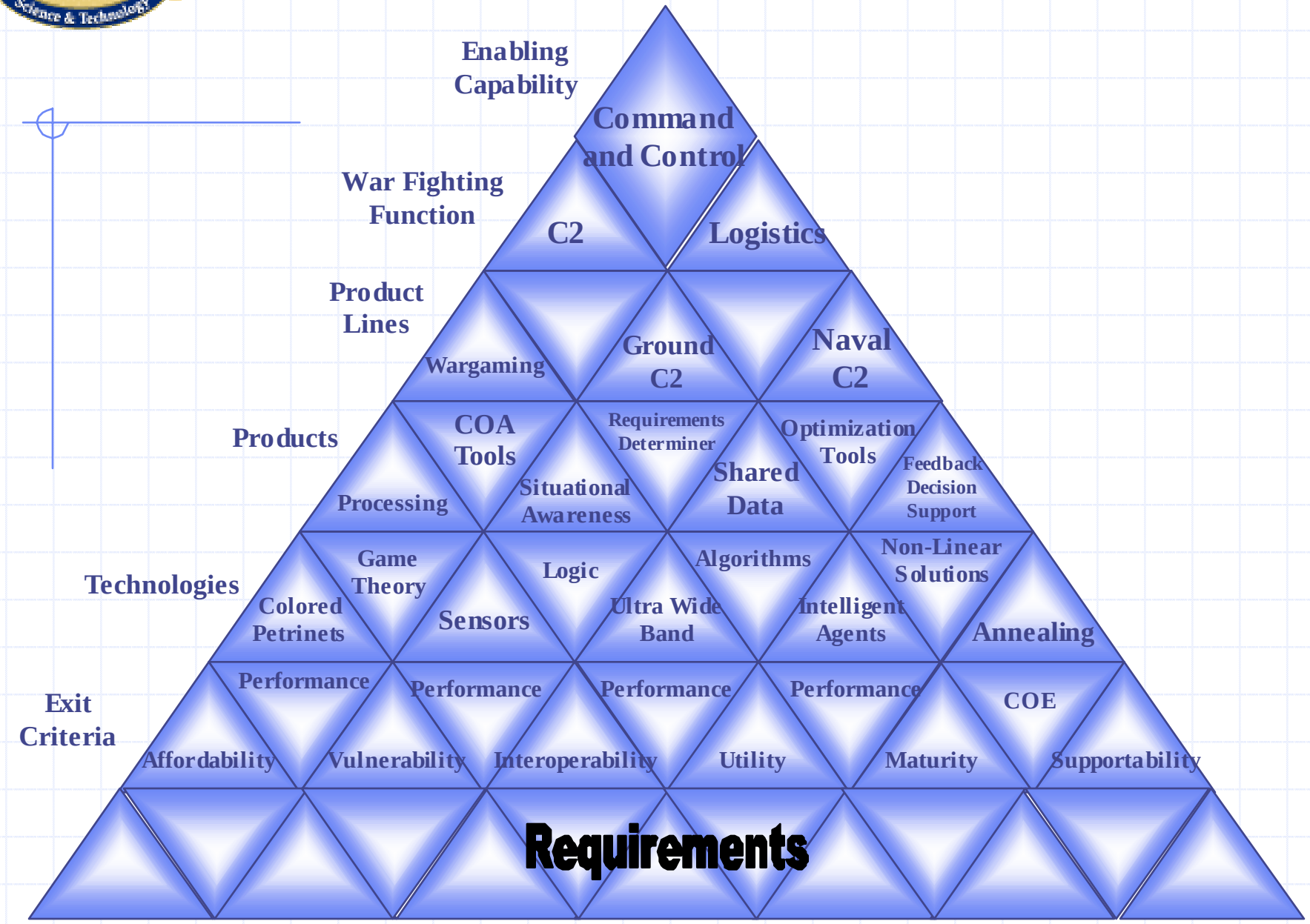
- Command and Control is the missing piece to the CSS operational picture
- Require capabilities to support emerging doctrine, organization, and tactics
- Logistics C2 is a key component of the GCSS-MC portfolio of capabilities
- C2 *enables control of the logistics pipeline* at every phase of an operation

GCSS-MC

Warfighter CSS on Command

Questions

TAXONOMY OF EXLOG FNC – COMMAND AND CONTROL



ONR EXLOG C2 PROGRAM ORGANIZATION

ONR FNC STRUCTURE

N911

Functions as a Board of Directors

Program Mgr
Ms. Lynn Torres

Tom Tesch
ONR

Resource Sponsor
S&T Sponsor
FNC IPT
Reqmts Sponsor
Acquisition Sponsor

HQMC

MCSC

Transition Mgr
Mr. Rick Kelish

Technical Mgr
Mr. Nathan Smith

Assessment Mgr
TBD

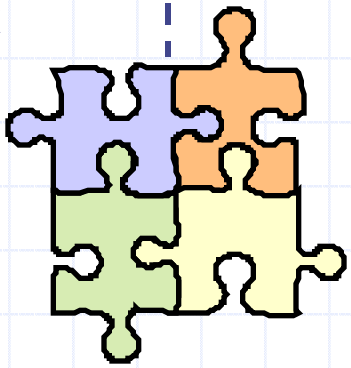
Demo Mgr
TBD

Developers

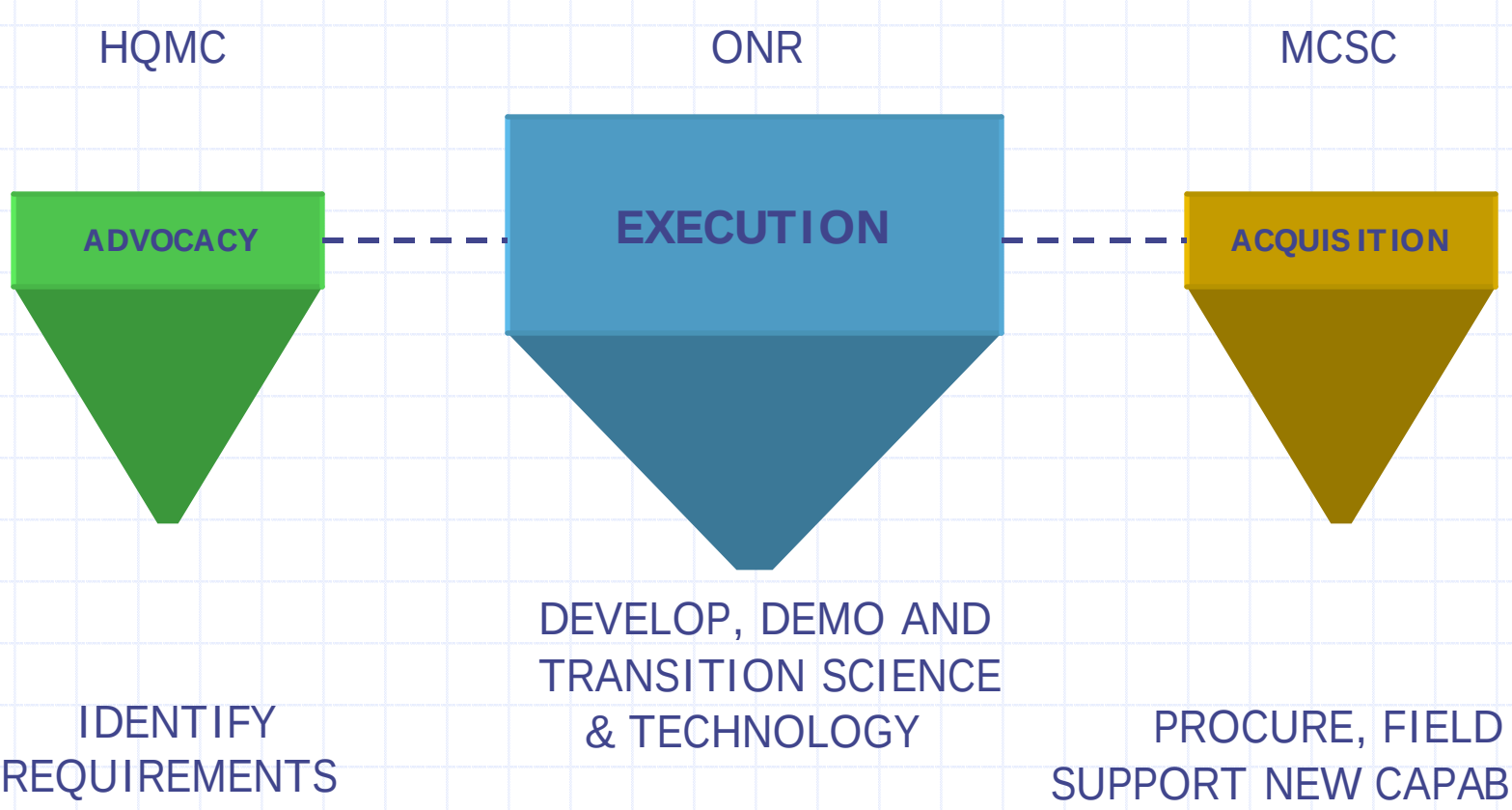
- Contractor A
- Contractor B
- Contractor C

ONR MATRIX

Contracts
Legal
Budget
PAO
SME

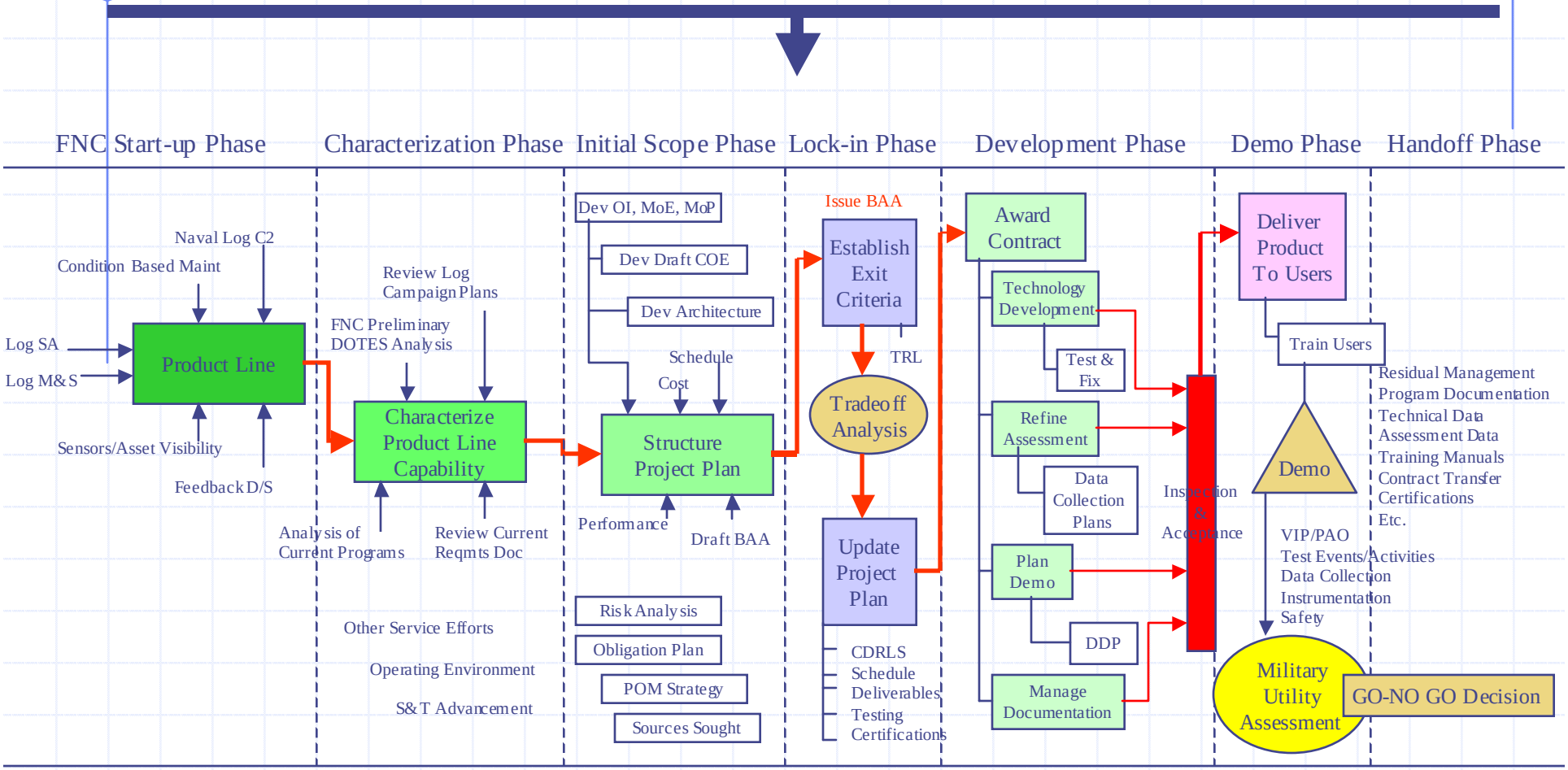


PROGRAMMATIC RELATIONSHIPS



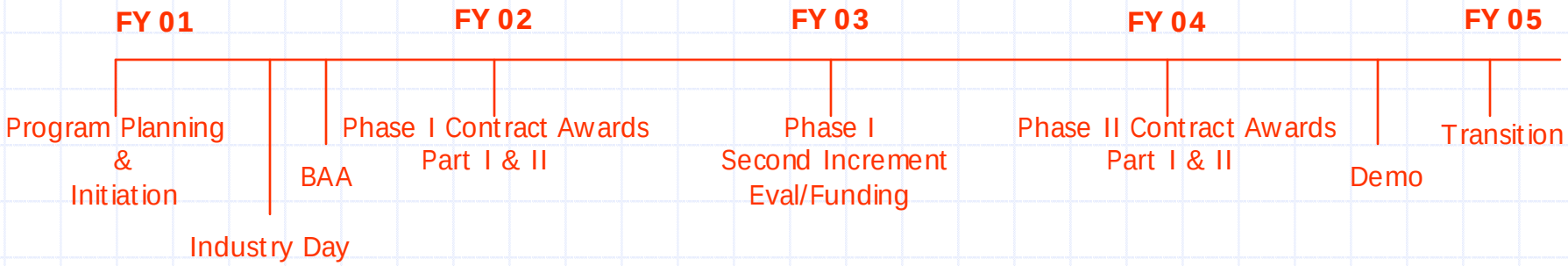
Operational Forces

Visualization of the FNC Process



BAA APPROACH & OVERVIEW

Two Step	Two Part	Two Phase
White Papers	Sensor Part	Development Phase
Orals	C2 Software Part	Demo Phase



ONR reserves right to make multiple awards at Phase I and to down select to the most promising technology for Phase II Demo.

TWO STEP SELECTION PROCESS

First Step – White Paper Submission

- Standard BAA submission outline and procedures
- Stick to the guidance contained in the BAA

Second Step – Full Proposal/Orals

- Necessary step added to reduce transition risk
- Increase chances for a usable product
- Better understand Offerors approach
- Meet principle investigator/key personnel

TWO PART – TECHNOLOGY THRUSTS

Part I (Sensors): Looking at relatively mature sensor technology across the range of logistics orientated information requirements.

- Readiness Based Sensors
- Condition Based Maintenance Sensors
- Asset Visibility

} Processing, Integration, Data, etc.

Part II (CSS Tool Kit): Multi-faceted technologies aimed at improving and automating logistics command and control management functions.

- Mission Planning Tools
- COA Tools
- Plans Preparation Tools
- Execution and Assessment Tools
- Reconstitution Tools
- Presentation Technology

TWO PHASE

Phase I – Development:

- Two year effort (FY02 – FY03).
- Effort is broken down into two 12 month increments.
- Each increment should define progress/deliverables.
- At the end of Phase, decision will be made to proceed into Phase II.
- Focus is on successful design, development and component integration. Potential to demonstrate and transition.

Phase II - Demonstration:

- One year effort (FY04).
- Focus is on systems integration, interfacing with operational forces, refining design, testing, and culminating demonstration.
- Essential to document architecture, design, affordability, etc., to make informed decision regarding transition.

COORDINATING INSTRUCTIONS

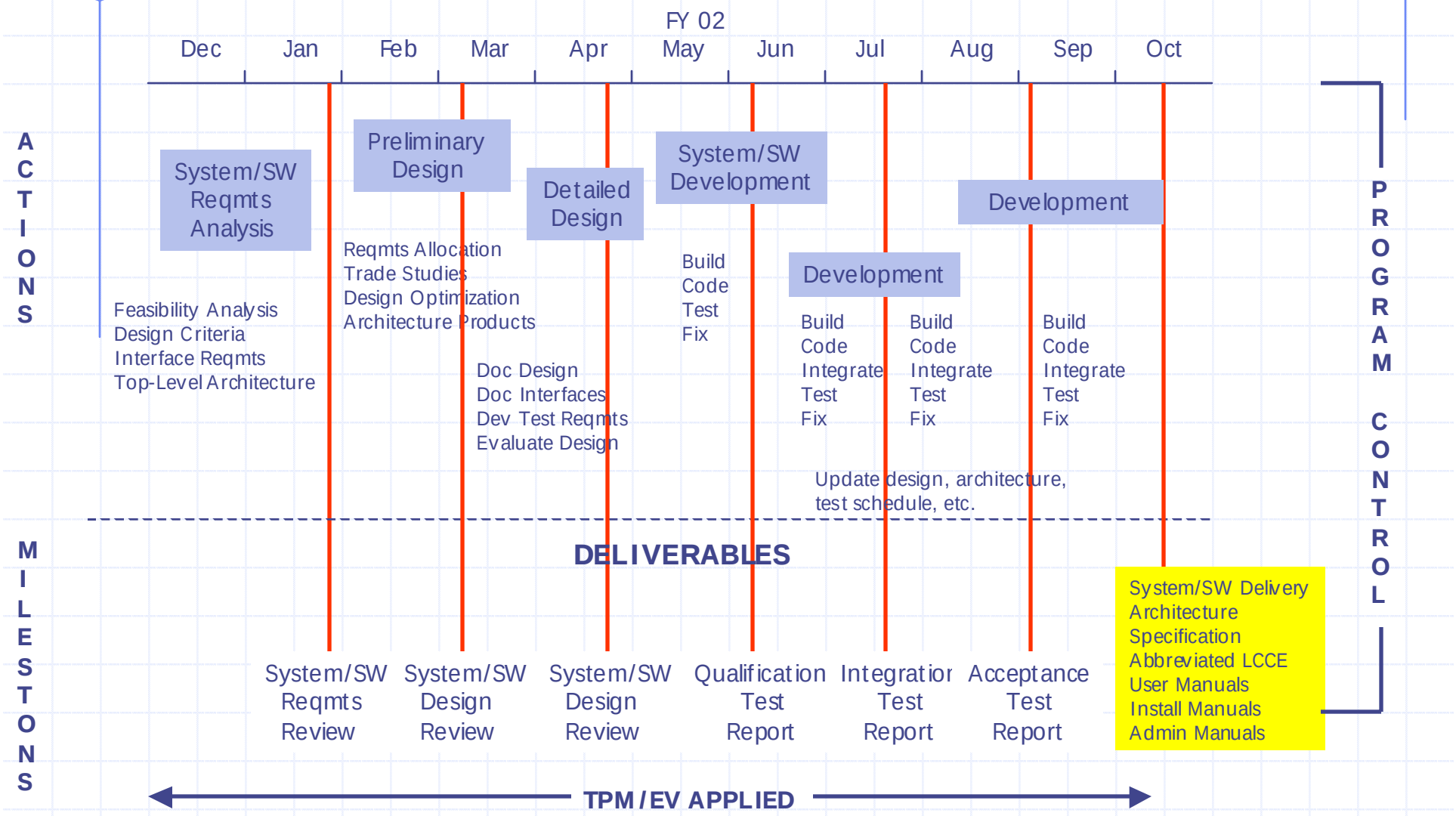
Offerors are encouraged (but not required) to team on their proposals.

ONR will utilize TPM/EV techniques to support required decision points, monitor progress and determine if a second year of funding is required and who/what moves into Phase II.

ONR will require In-Progress Reviews and established deliverables/milestones.

Documentation (CDRLs) supporting the design effort can be expected as a part of this BAA effort.

NOTIONAL EXECUTION POA&M



ENABLING TECHNOLOGIES

Sensors

Condition-Based Maint
Asset Visibility
Readiness
Others

CSS Tool Kit

Sustainment Calculator
Task Organization Builder
CSS Virtual Sand Table
COA Sim/Evaluation
Plans Preparation
Rapid Request Tracking
Automated Reports Generator
Scheduling Tools
Route Selection Tool
Risk Analysis Tool
Event Matrices
Decision Spt Matrices
Synchronization Matrices
SME Surrogate
Forecasting Models
Others

Presentation / Display

C2PC Log Injector
Graphing Technologies
Readiness Displays
Others

Planning Tools

Execution Tools

Planning & Execution Tools

PERFORMANCE PARAMETERS

Performance Parameters are capabilities considered essential for successful mission accomplishment:

MAGTF C4I Compatibility
Modularity
Responsiveness
Security
Information Access
Information Accuracy & Integrity
Interoperability
Transportability
Open Architecture
Information Currency
Information Timeliness

SYSTEM CHARACTERISTICS

System Characteristics are items that tend to be design, cost and risk drivers:

Satisfy Real Mission Needs
Work Across Traditional Boundaries
Achieve Measurable Near-Term Gains
Manage Data as a Corporate Resource
Engineer for Constant Change
Use of Standardized Data
Data is Created/Acquired Once and Shared as Needed
Data is Separate from Applications
Data Security
Data Quality

PRELIMINARY DRAFT CONCEPT OF EMPLOYMENT

Purpose: To describe a Ground Logistics Command and Control concept structured around a family of logistics oriented sensors and a Commanders CSS Tool Kit.

Scope: Provides preliminary background, information, mission essential functions for understanding and developing a GLC2 system.

General: Provides information on scenarios, operational concept, mission profiles, etc.

CoE/MP is a living document and will be updated based on lessons learned throughout this effort.

MISSION ESSENTIAL FUNCTIONS

Descriptive summary of system/sub-system attributes in operational terms.

Defines primary functions required for mission success.

Developers can use MeF as a checklist or guide for designing the system.

Program Office/Operational Forces can use MeF as a method to assess system functionality.

OPERATIONAL STATES

Sea-Based Logistics

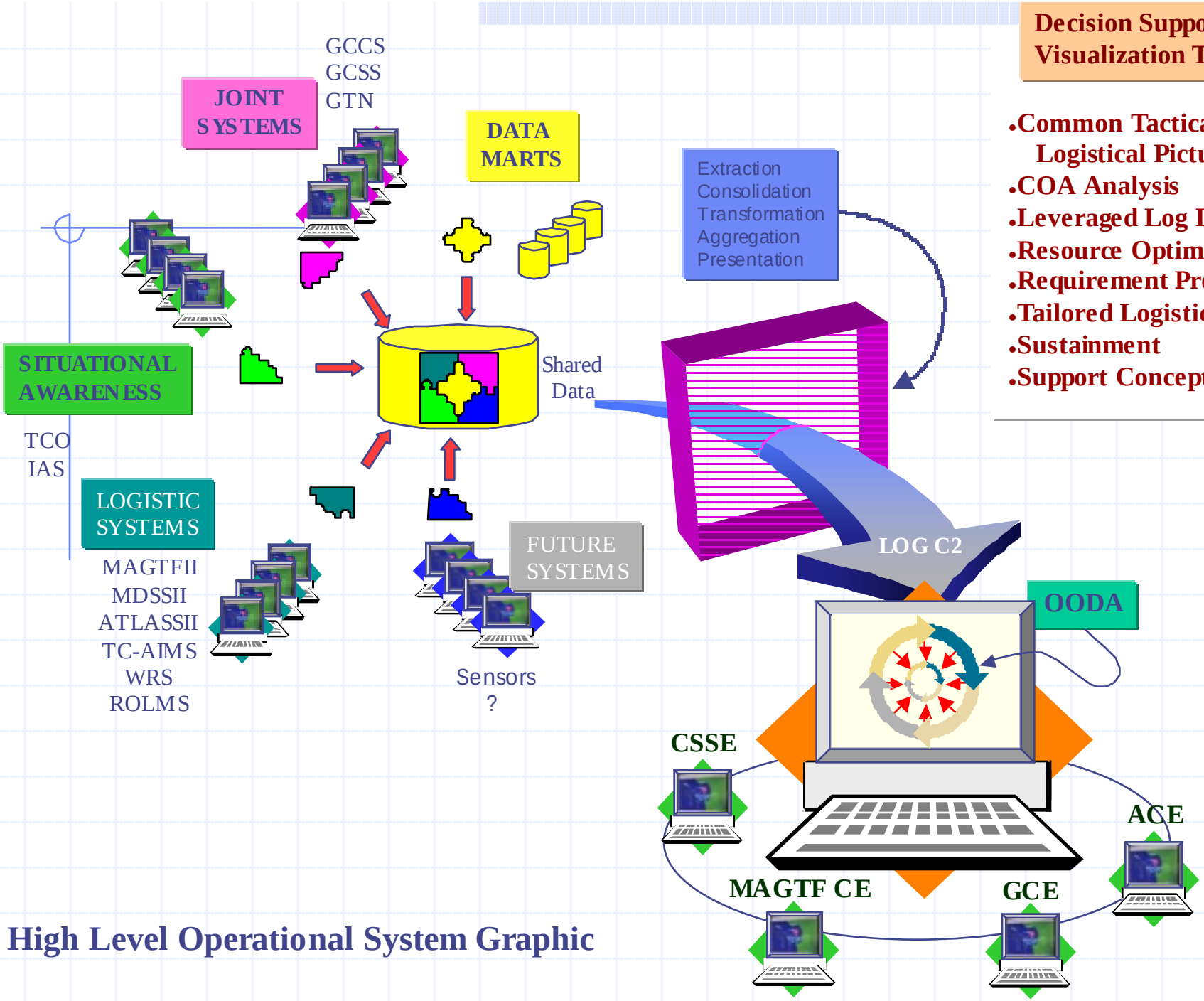
Characteristics: Decentralized
General Support Relationship
Great Distances

Land-Based Logistics

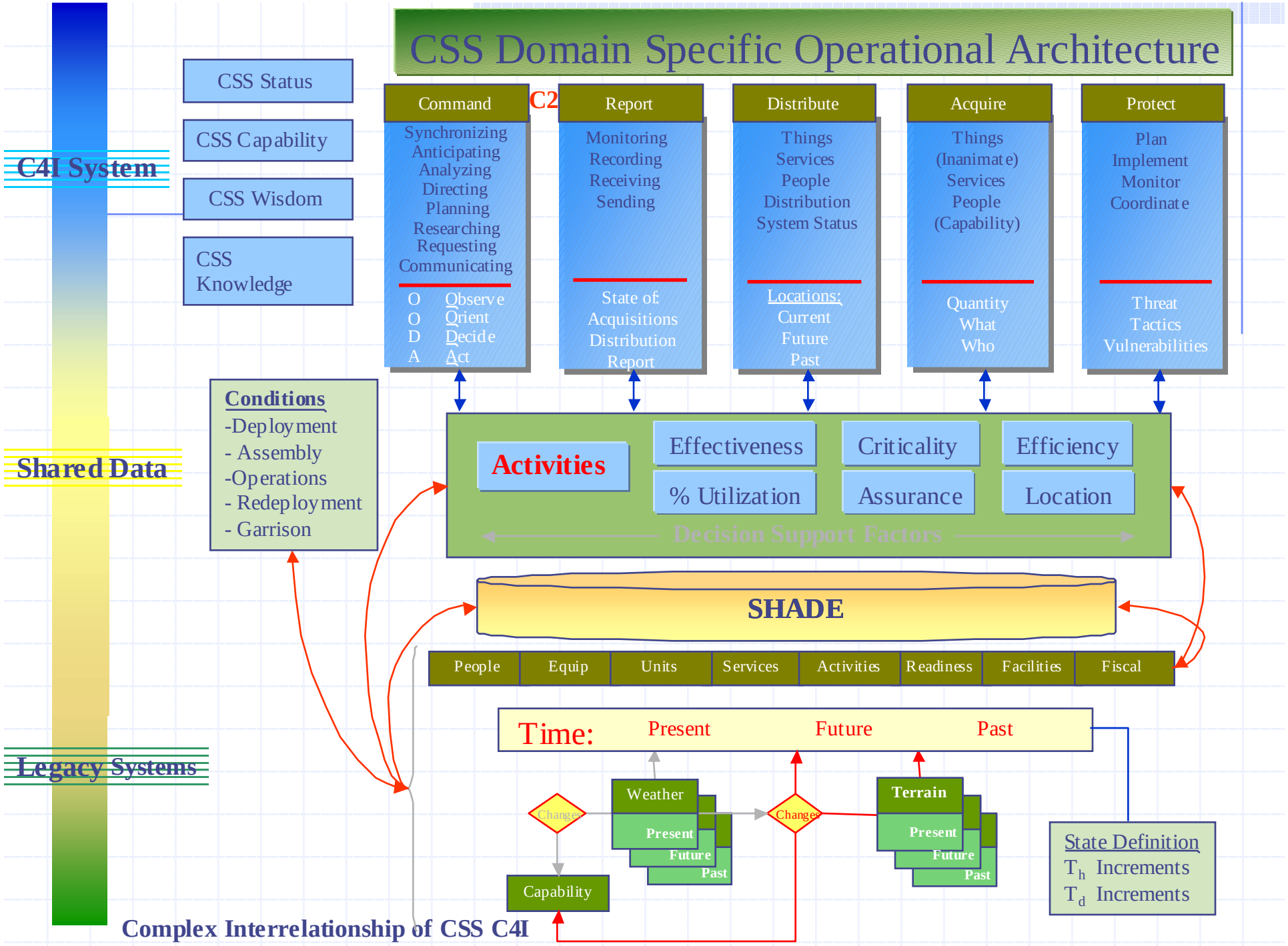
Characteristics: Decentralized
General Support Relationship
Relatively Static Organization

Mobile Logistics

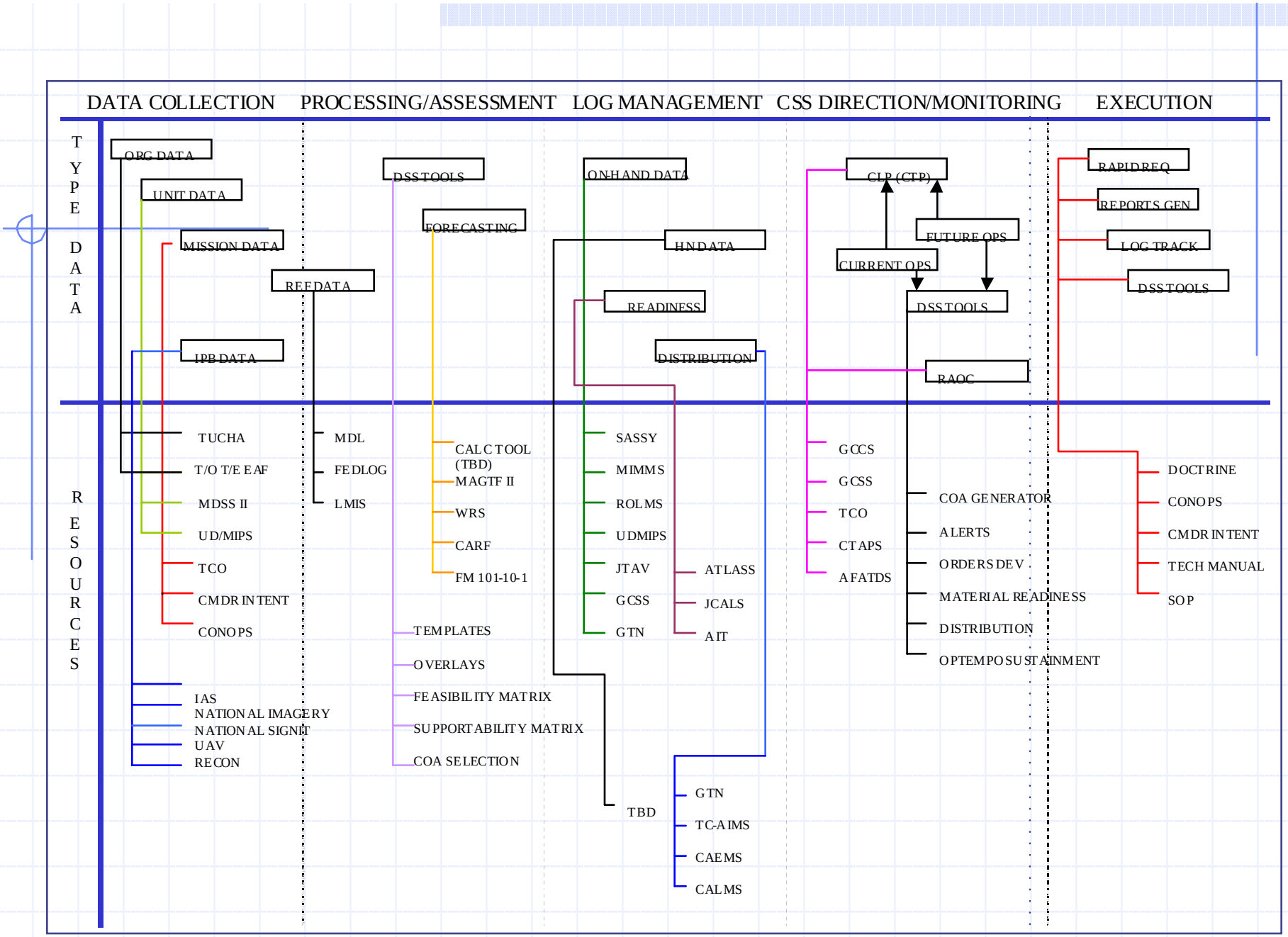
Characteristics: Centralized
Direct Support Relationship
Entirely mobile
Requires frequent resupply

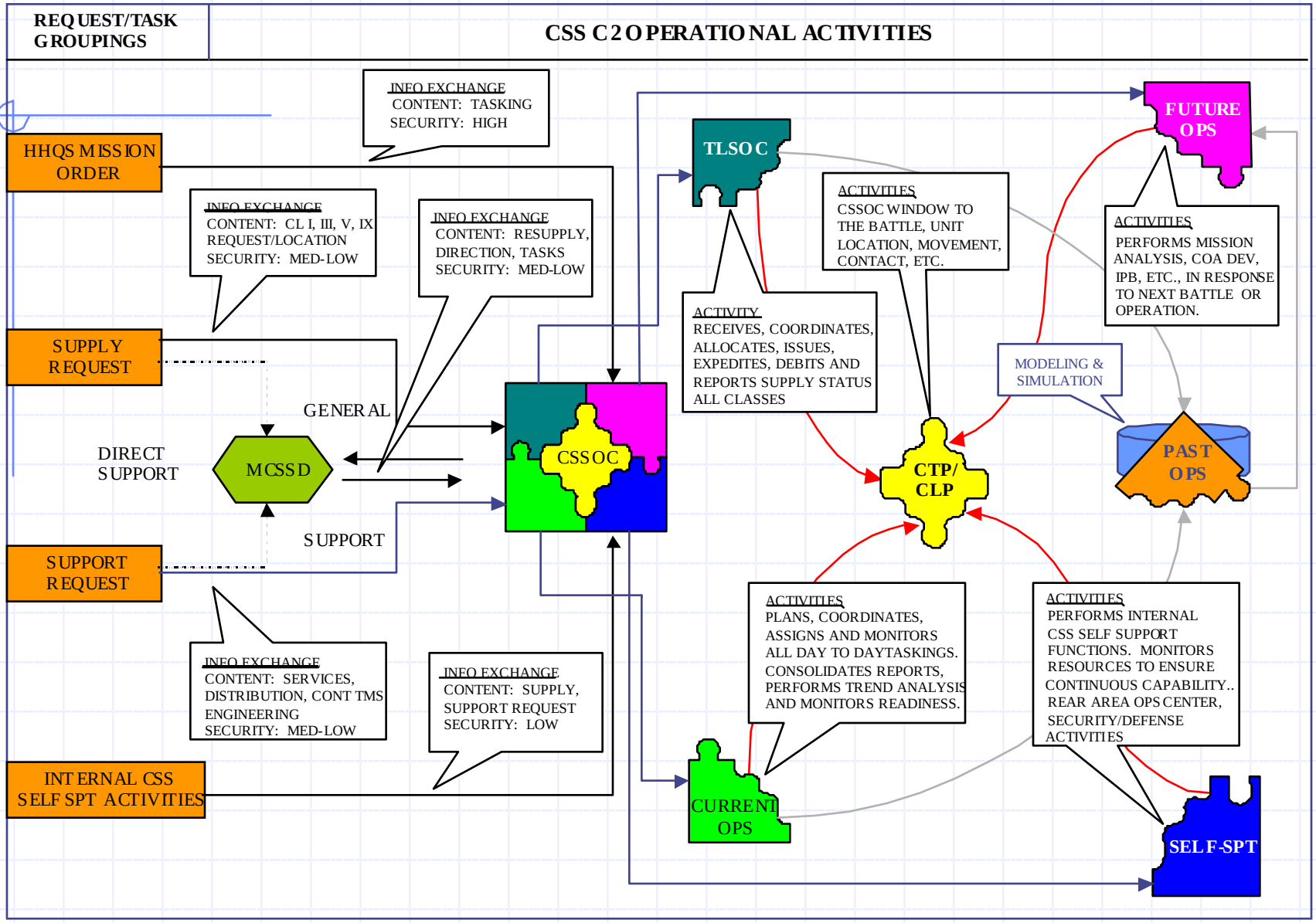


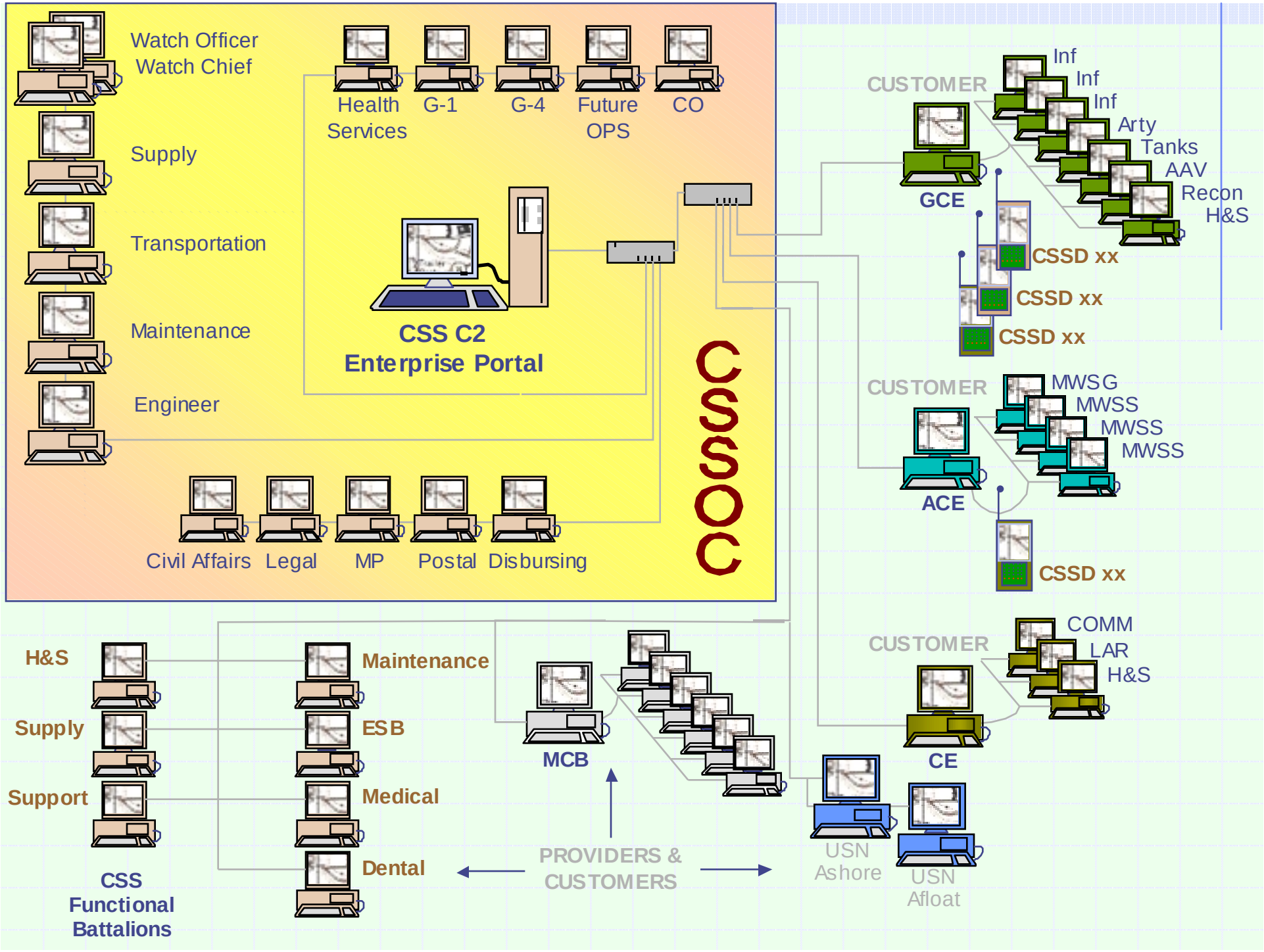
High Level Operational System Graphic



Complex Interrelationship of CSS C4I


DATA COLLECTION
PROCESSING/ASSESSMENT
LOG MANAGEMENT
CSS DIRECTION/MONITORING
EXECUTION
TYPE DATA
RESOURCES
ORG DATA
UNIT DATA
MISSION DATA
IPB DATA
REF DATA
DSS TOOLS
FORECASTING
ON-HAND DATA
H/N DATA
READINESS
DISTRIBUTION
CLP (CTP)
CURRENT OPS
FUTURE OPS
DSS TOOLS
RAOC
RAPID REQ
REPORTS GEN
LOG TRACK
DSS TOOLS
TUCHA
T/O T/E EAF
MDSS II
UD/MIPS
TCO
CMDR INTENT
CONOPS
IAS
NATIONAL IMAGERY
NATIONAL SIGNIT
UAV
RECON
MDL
FEDLOG
LMIS
CALC TOOL (TBD)
MAGTF II
WRS
CARF
FM 101-10-1
TEMPLATES
OVERLAYS
FEASIBILITY MATRIX
SUPPORTABILITY MATRIX
COA SELECTION
SASSY
MIMMS
ROLMS
UDMIPS
JTAV
GCSS
GTN
ATLASS
JCALS
AIT
TBD
GTN
TC-AIMS
CAEMS
CALMS
GCCS
GCSS
TCO
CTAPS
AFATDS
COA GENERATOR
ALERTS
ORDERS DEV
MATERIAL READINESS
DISTRIBUTION
OPTEMPO SUSTAINMENT
DOCTRINE
CONOPS
CMDR INTENT
TECH MANUAL
SOP


REQUEST/TASK GROUPINGS
CSS C2 OPERATIONAL ACTIVITIES
HHQS MISSION ORDER
SUPPLY REQUEST
SUPPORT REQUEST
INTERNAL CSS SELF SPT ACTIVITIES
INFO EXCHANGE
CONTENT: TASKING
SECURITY: HIGH
INFO EXCHANGE
CONTENT: CL I, III, V, IX REQUEST/LOCATION
SECURITY: MED-LOW
INFO EXCHANGE
CONTENT: RESUPPLY, DIRECTION, TASKS
SECURITY: MED-LOW
INFO EXCHANGE
CONTENT: SERVICES, DISTRIBUTION, CONT TMS ENGINEERING
SECURITY: MED-LOW
INFO EXCHANGE
CONTENT: SUPPLY, SUPPORT REQUEST
SECURITY: LOW
GENERAL
DIRECT SUPPORT
SUPPORT
MCSSD
CSSOC
TLSOC
CURRENT OPS
FUTURE OPS
CTP/ CLP
PAST OPS
SELF-SPT
ACTIVITIES
CSSOC WINDOW TO THE BATTLE, UNIT LOCATION, MOVEMENT, CONTACT, ETC.
ACTIVITY
RECEIVES, COORDINATES, ALLOCATES, ISSUES, EXPEDITES, DEBITS AND REPORTS SUPPLY STATUS ALL CLASSES
ACTIVITIES
PERFORMS MISSION ANALYSIS, COA DEV, IPB, ETC., IN RESPONSE TO NEXT BATTLE OR OPERATION.
MODELING & SIMULATION
ACTIVITIES
PLANS, COORDINATES, ASSIGNS AND MONITORS ALL DAY TO DAYTASKINGS. CONSOLIDATES REPORTS, PERFORMS TREND ANALYSIS AND MONITORS READINESS.
ACTIVITIES
PERFORMS INTERNAL CSS SELF SUPPORT FUNCTIONS. MONITORS RESOURCES TO ENSURE CONTINUOUS CAPABILITY.. REAR AREA OPS CENTER, SECURITY/DEFENSE ACTIVITIES

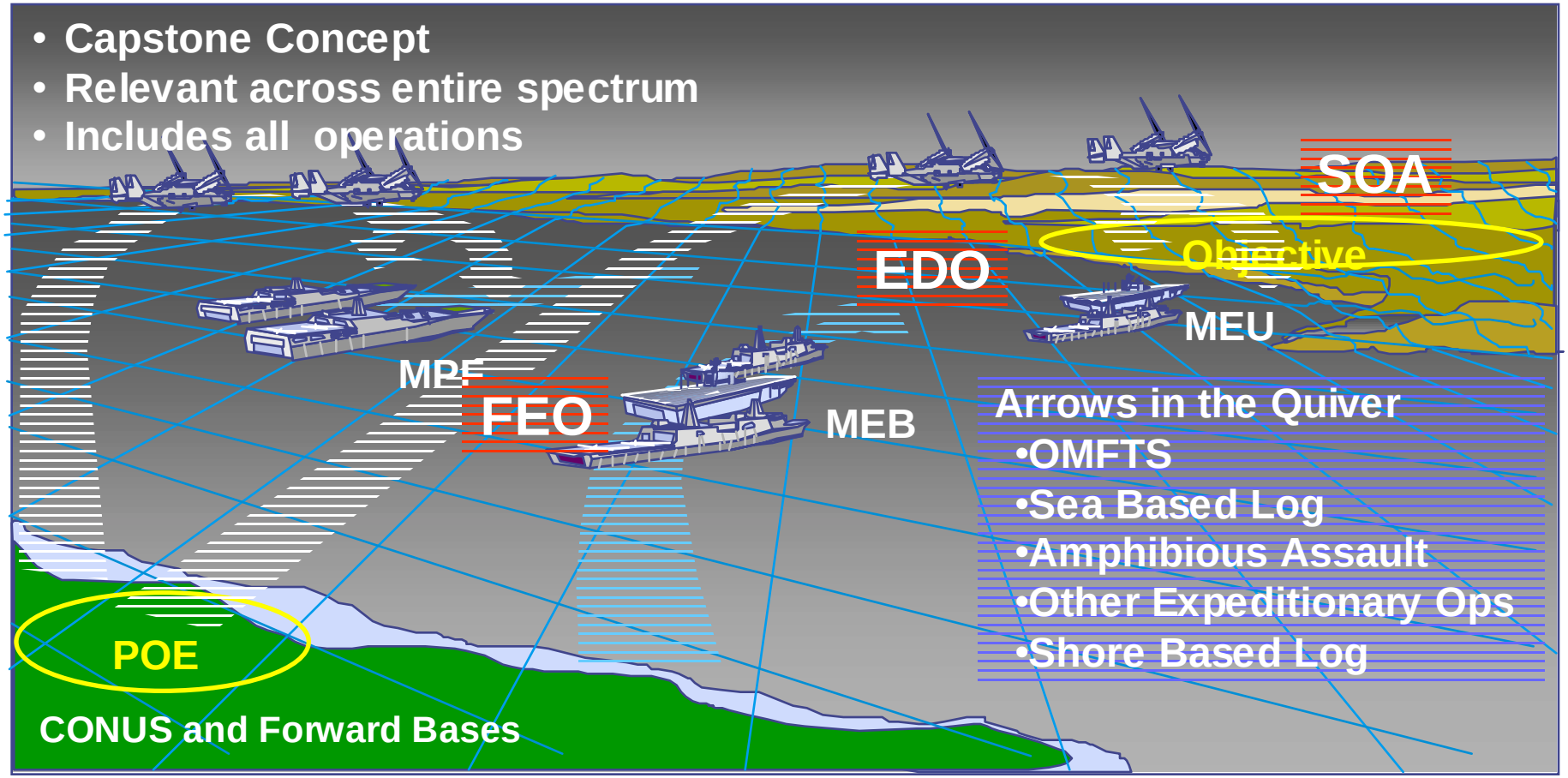

Watch Officer
Watch Chief
Supply
Transportation
Maintenance
Engineer
Health Services
G-1
G-4
Future OPS
CO
CSS C2
Enterprise Portal
CSSOC
Civil Affairs
Legal
MP
Postal
Disbursing
CUSTOMER
Inf
Inf
Inf
Arty
Tanks
AAV
Recon
H&S
GCE
CSSD xx
CSSD xx
CSSD xx
CUSTOMER
MWSG
MWSS
MWSS
MWSS
ACE
CSSD xx
CUSTOMER
COMM
LAR
H&S
CE
H&S
Supply
Support
CSS Functional Battalions
Maintenance
ESB
Medical
Dental
MCB
PROVIDERS & CUSTOMERS
USN Ashore
USN Afloat

Expeditionary Maneuver Warfare

Forward
Engagement
Operations

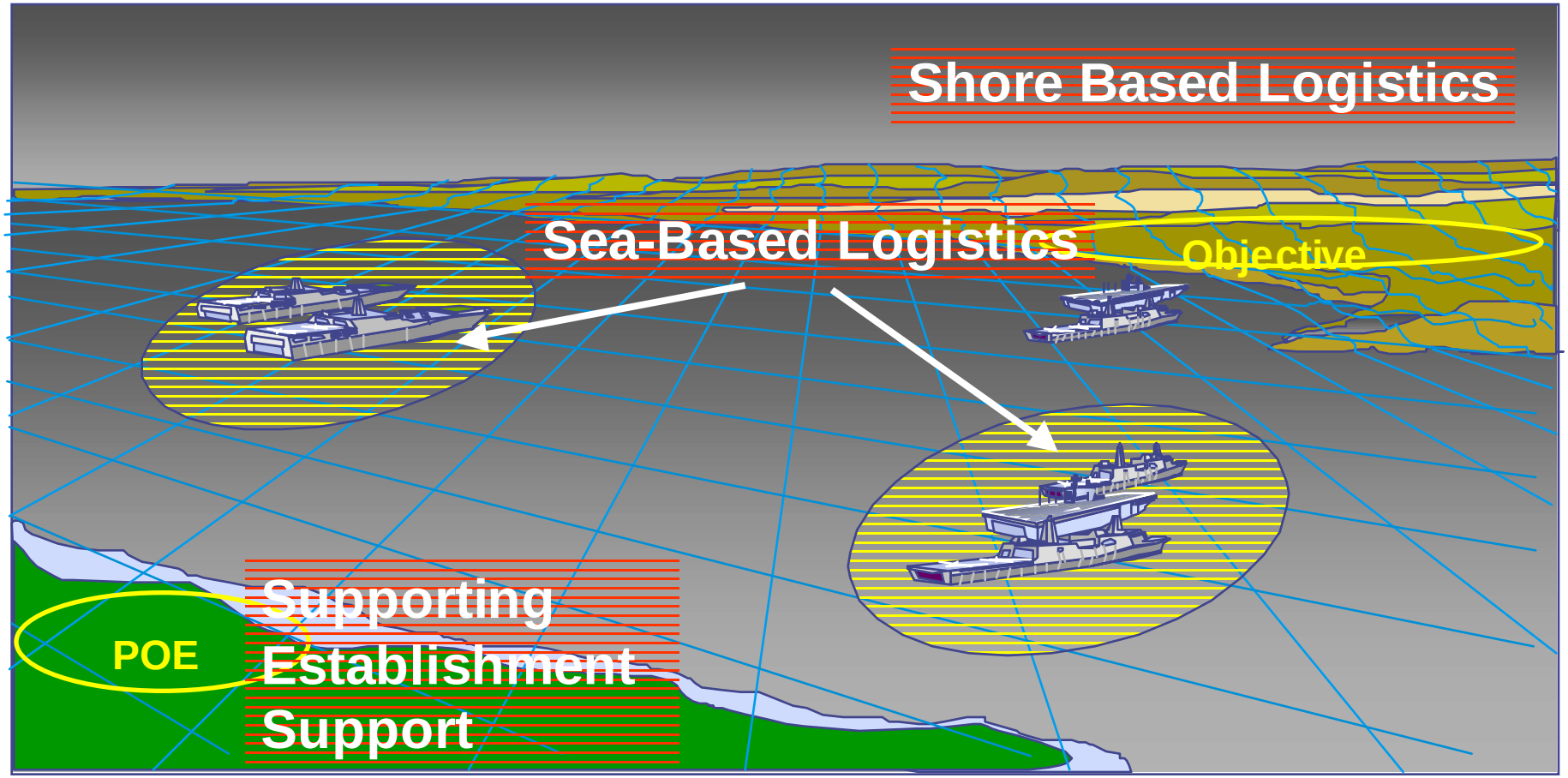
Expeditionary
Decisive
Operations

Sustained
Operations
Ashore

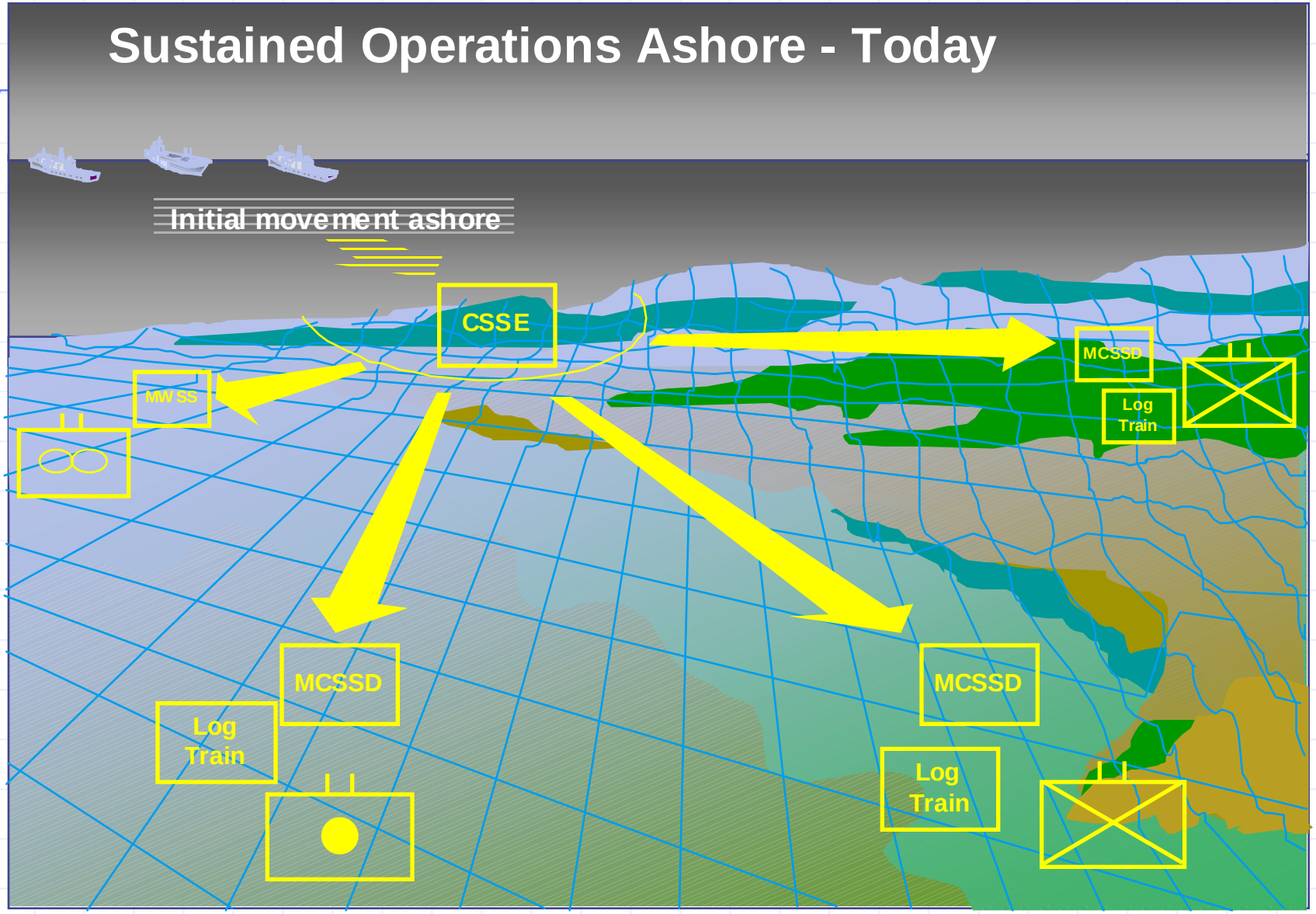


Future Logistics Concepts

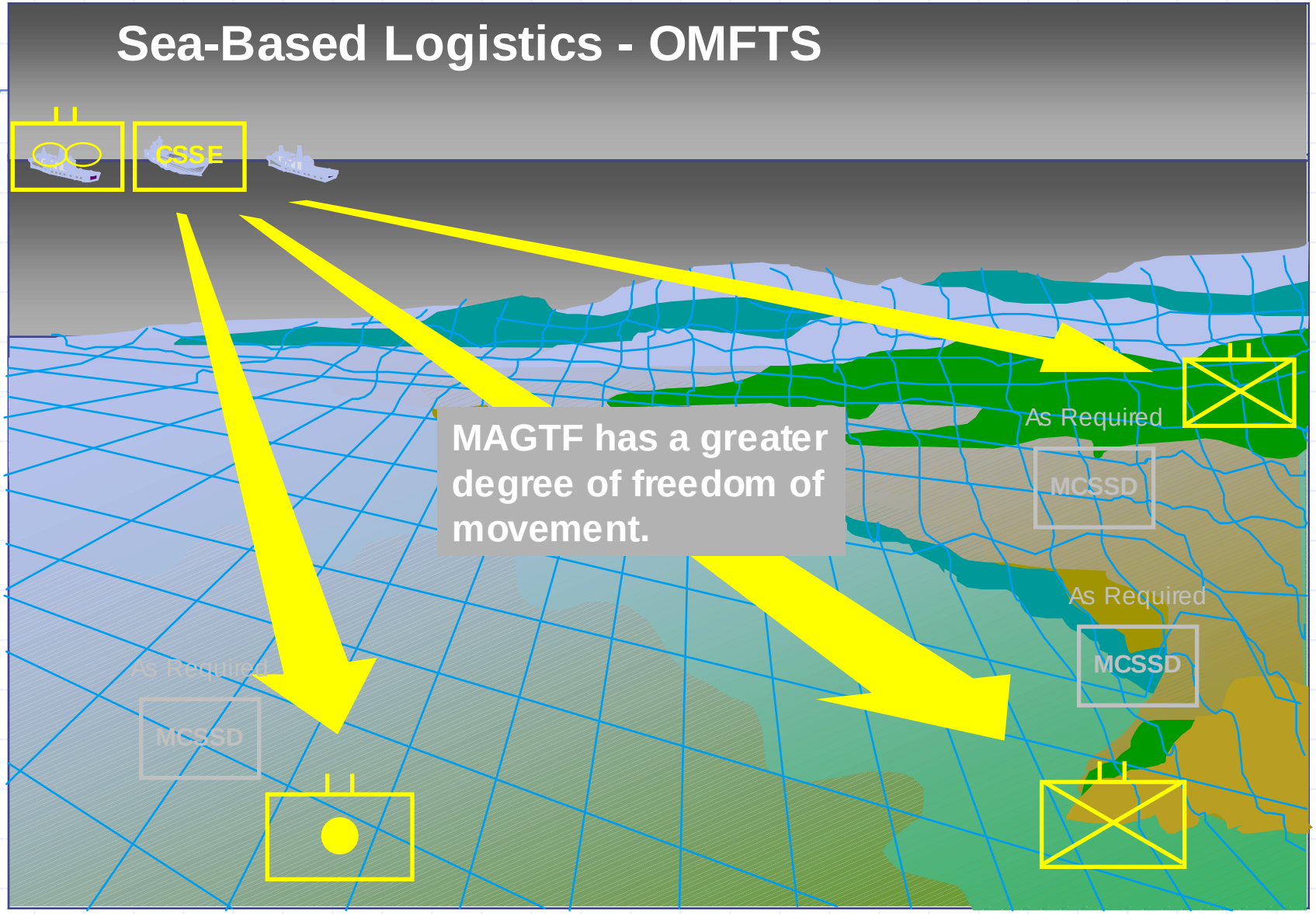
Marine logistics must be able to support the full operational spectrum through a combination of capabilities.



Future Logistics Concepts



Future Logistics Concepts



TRANSITION TO ACQUISITION / EXIT CRITERIA

Transition to acquisition is the ultimate objective of the FNC.

Transition to acquisition translates into a fielded capability to the operational forces.

Exit Criteria provides decision format for transition to acquisition.

Exit Criteria is negotiated between FNC and acquisition community, approved by FNC IPT.

Exit Criteria will define minimum functionality and performance necessary for transition.

Other factors that influence transition include affordability/POM, architecture, interoperability, vulnerability, modularity, etc.

SUCCESSFUL TRANSITION REQUIRES

Novel technology that satisfies a real deficiency - relevant (aligned against MNS/ORD).

Execution plan that integrates transition into both the technical and business approach.

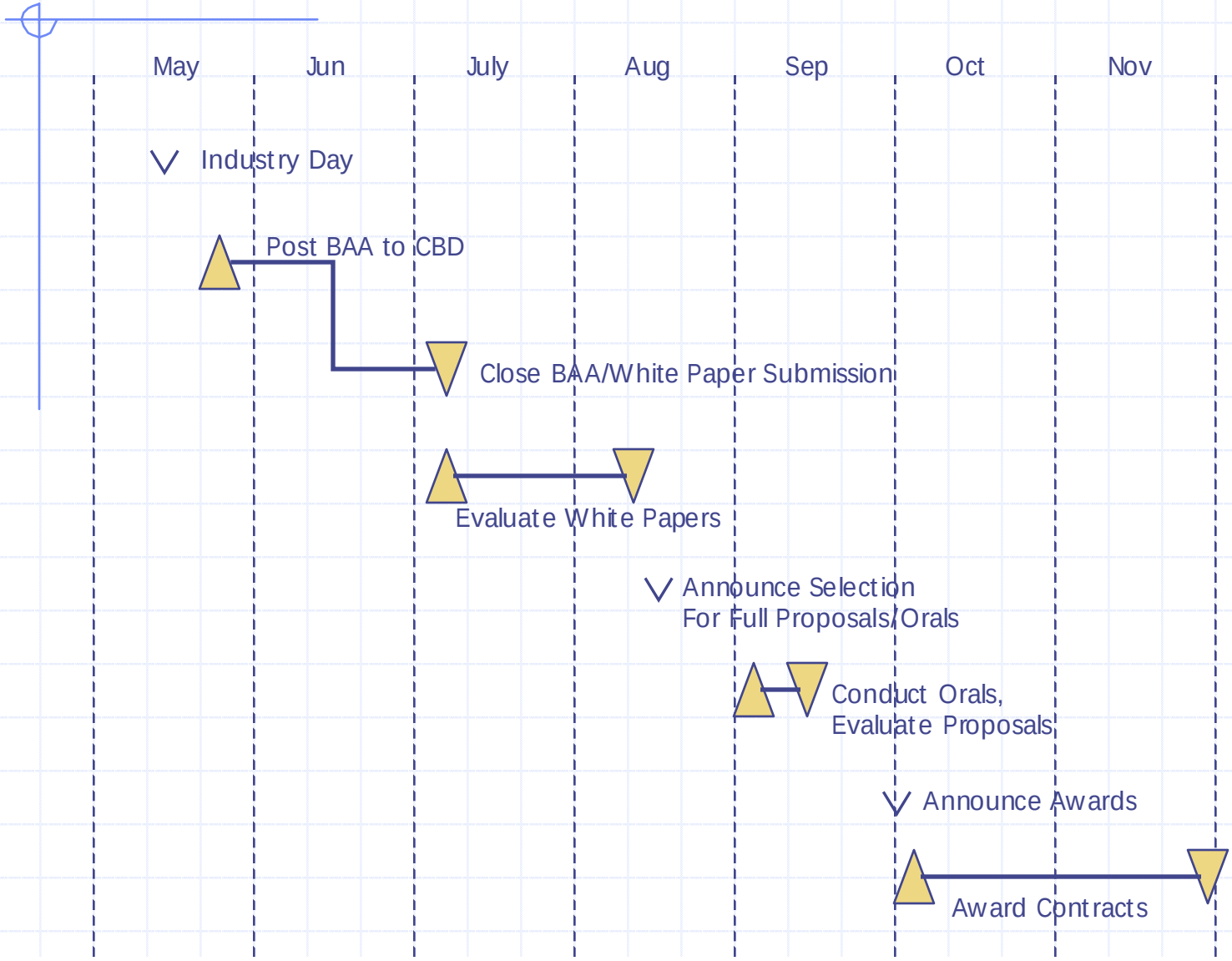
Supporting documentation to continue development, perform life cycle management, manage configuration, assess design and performance, perform LCCE, etc.

Compliant with appropriate orders, directives, policies, and architectures.

Marines must like it , want it.

A BUDGET LINE IN THE POM.

POA&M LEADING UP THROUGH CONTRACT AWARD



EXPEDITIONARY LOGISTICS WEB SITE

http://www.onr.navy.mil/expedlogisfnc/

ExLog FNC Directory.

[http://www.onr.navy.mil/expedlogisfnc/BAA.htm
Proposers Information Page: Supporting documentation relative to this effort (i.e., BAA, CoE/MP, Industry Day Briefing, etc.).

Posting of BAA questions and answers.

All BAA/Contracting questions shall be submitted via email to [duberry@onr.navy.mil], copy to [smithn@onr.navy.mil].

ONR will not respond to BAA/Contracting questions via telephone.

BREAK

QUESTIONS